

Bookstore

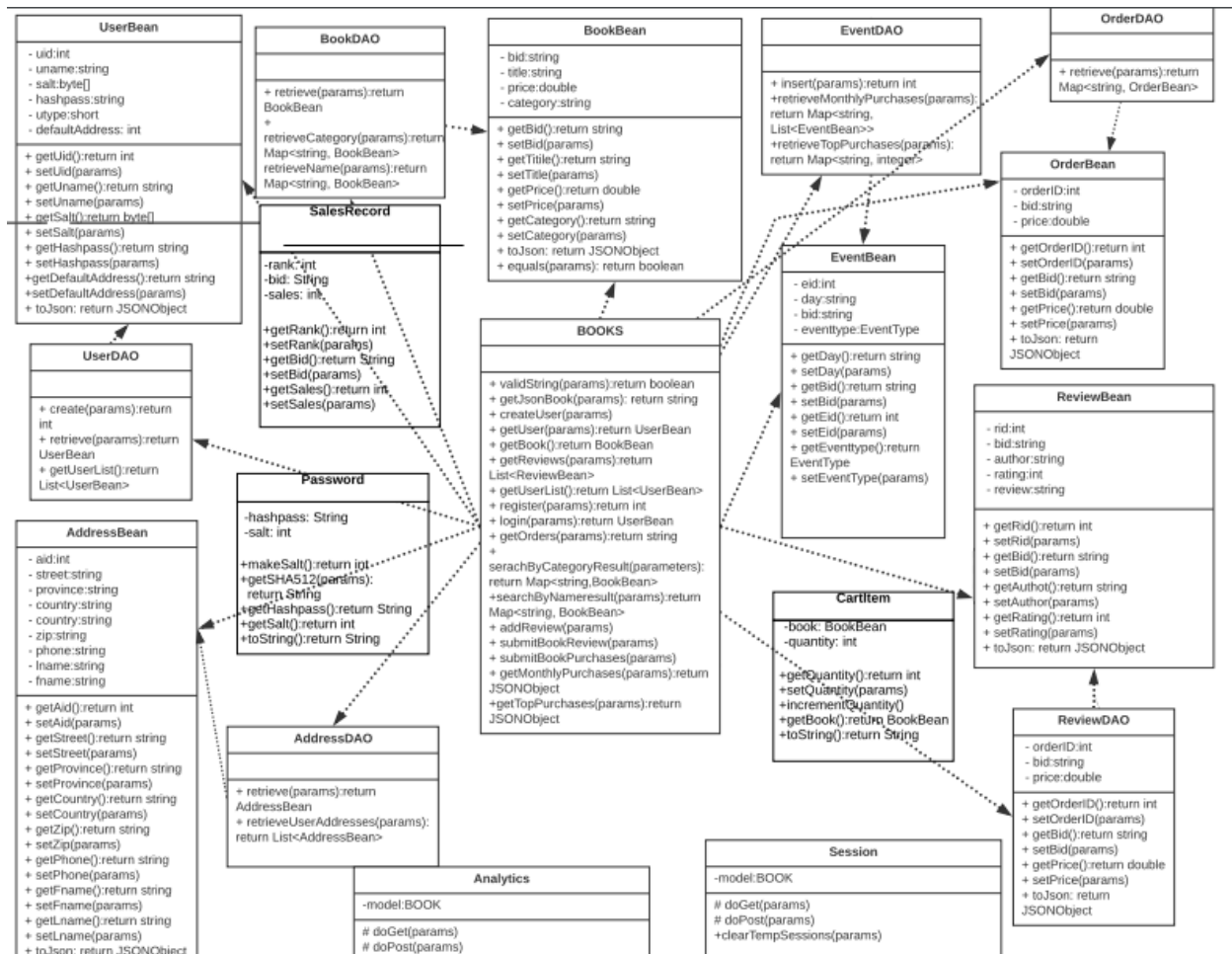
Diba Jafarnejad

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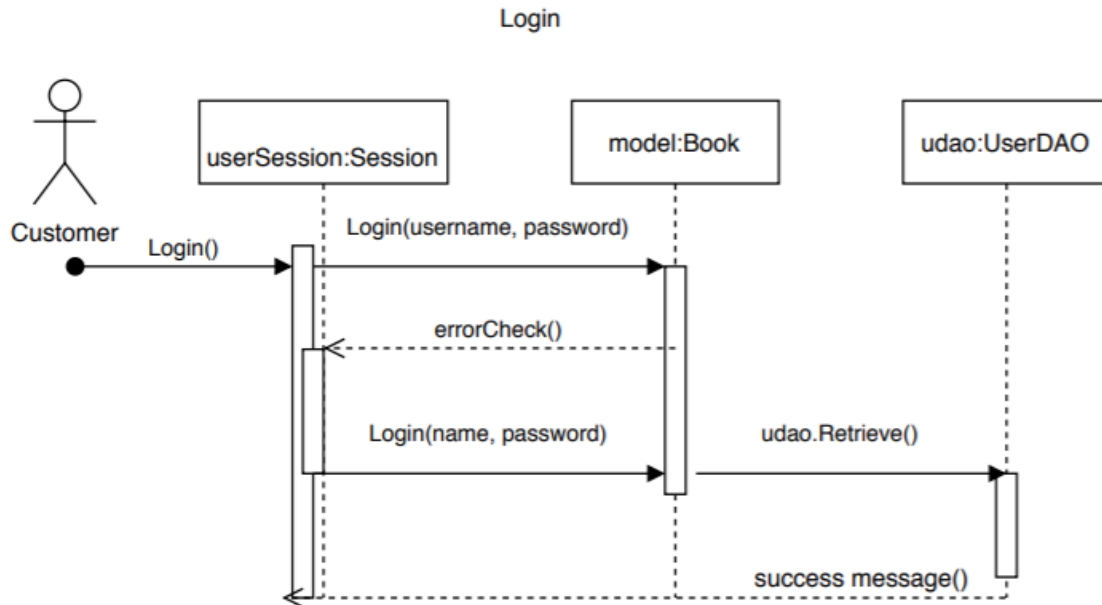
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Architecture

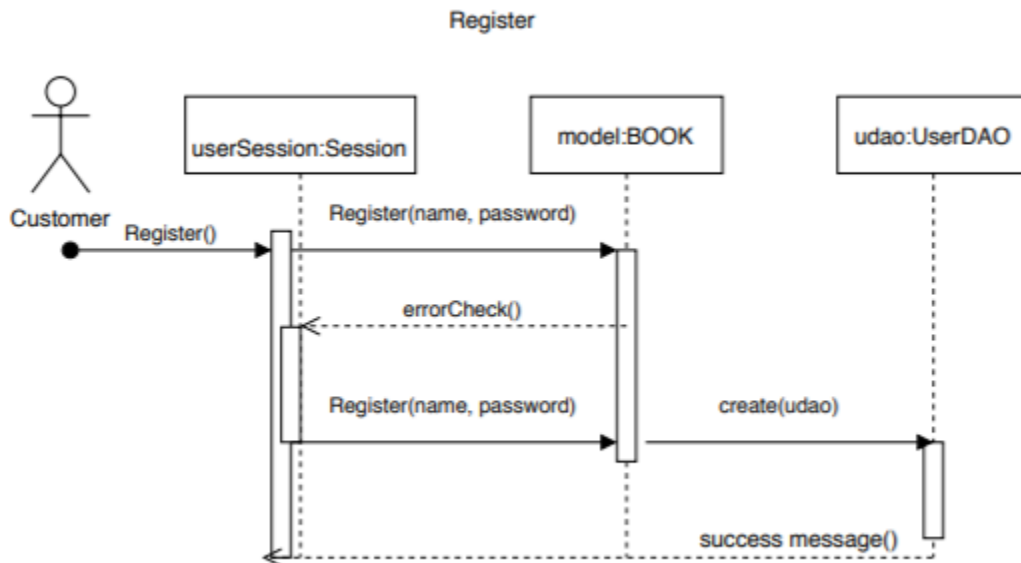
Class Diagram



Sequence Diagram - Use Case: Login



Sequence Diagram - Use Case: Register



Implementation

First and foremost, we chose to deploy our e-commerce application and run our database in the cloud. This was a pretty easy decision as it was deemed ideal in the project description and would be judged more positively. The main trade-offs of this decision were a required understanding of how IBM cloud works as well as getting it to work. A decent portion of our time was spent setting up the database/git repository etc. Furthermore, we decided not to use Maven simply because we all lacked experience with it and found it rather easy to deal with the dependencies ourselves. We also decided not to use Java Server Faces or Java Spring because, once again, we were not too experienced with both the former and the latter. Neither of these decisions mentioned seemed to have much of a trade-off since the extra time we probably spent without them was less than it would have been trying to use them.

The main method we used in order for all of us to work on the code synchronously was an application called CodeTogether where one person would host a session on eclipse and the remaining two group members would join the session through a browser via URL link. While this application was good for what it was designed to do, it still put limitations on our progress regarding testing because only the host of the session would be able to run the code. We also utilized a git repository that way each member could work on the up-to-date version of the project on their own time if need be. However, you cannot run a project in eclipse that was imported from a git repository leaving only the master of the repository with the ability to run the code. In our case, this was the same person who would host the CodeTogether sessions. The only way for the other two members to run the code, or test it, for themselves required the export/import of a war file as well as access to the database or a copy of it. So, testing for these two members was extremely limited. For the other member, testing the code on the cloud also had its limitations. Deployment and redeployment to the cloud was a long and “iffy” process that we often tried to avoid until major checkpoints were reached. **Online/Local DataSource access were switched with a static setting in the BOOKS model, by a static Deployment enum.**

With regards to security, we believe to have not only met the expectations, but also exceeded them. A registered user trying to access the admin page will be faced with a “You are not logged into an admin account” message and rightfully denied access. Our e-commerce application is also resistant to simple SQL injection attacks thanks to the utility of PreparedStatements when accessing the database, as well as validating String inputs through a special character check.

Usage

Account System

Fresh visits to the web page do not have an assigned account until they use the Registration form and sign-up with a username, and password fields. Guests (unregistered), Users and Admins have different access, accordingly, detailed below. When signing up for an account, password fields are hashed with a unique 4-byte salt per user before storing the hashed password and salt to the database.

Newly registered accounts are assigned a basic user level (3). With an account you can then sign-in with the header login form (which then provides a Logout button in its stead). Regular users gain the ability to post reviews, and check-out their shopping cart. Accounts also give access to their Address Book added to the header - leading to the list of addresses associated with their account, detailed below.

Admin users are assigned to accounts of the group project authors, as well as a provided admin demonstration account. Accounts with admin privileges may now access log generation by the Admin page which is displayed in the header after signing in.

Provided Accounts	User Name	Password
User Level Admin	admin	adminpass
User Level Standard	testuser	password

Book Search

The Book Search feature is implemented from the Home Page of the website with a search bar and radio buttons to choose search by a book's Name or by Category. Both searches are case-sensitive, but only the Category search matches to fill text only.

The following Search Results page provides a tabled list of matching entries by their book ID (bid), title, category, and price. The title field provides a link to that book's detailed information.

Book Information

Book Information displays the full log of the catalogued item, as well as the list of reviews for that book. From this page visitors of all kinds may add the book to their cart, as a success message will appear on completion, and just as well the Quantity field be updated by +1.

Registered Visitors will be able to post a review about the book - using their Account Name, by providing a rating (1-5) and review text before pressing Submit.

Book Info can be accessed from the /Session/Book path with query e.g., "?bid=b001".

Shopping Cart

As previously mentioned, all Visitors have a cart they may add books with. With the Shopping Cart page, they may view the full catalogue of items they added, update their quantities (including deletion with quantity=0), and view the total cost of their cart in addition to the total cost of each item in their cart. When updating quantities of a book, the displayed costs are adjusted accordingly.

When satisfied with their cart, all users again may proceed to the payment form by clicking Process Payment -- the page itself will restrict to registered visitors.

Checkout

Guest visitors will be told to sign-in or register. Accounts without addresses will be directed to their Address Book. Users with addresses will be asked to choose one for their shipping and billing and asked for their credit card information. Confirm Order will be enabled

when valid information is provided, leading the user with a final overview of their order before processing. After submitting, users will be directed to the Home page and informed of their order status (as per instruction, every 3rd order is denied).

Address Book

This page is hidden from unregistered visitors - if still requested, the page will inform them to sign-in or register. For registered visitors without addresses (by default creation), this page will only have a button to a Create New Address page which provides a form for address submission.

When a user has one or more addresses, the Address Book will display the last of their addresses and allow them to choose a new Default Address.

Admin Logs

When signed-in with an Administrator account, the Admin page will be accessible from the header, which will generate .json log files detailing the Monthly Purchases log, and Top Lifetime Purchases. The admin page provides links to these newly generated log files.

REST Service

____REST services are accessible through curl commands:

- curl -X GET <https://eecs4413-bookstore.mybluemix.net/rest/log/book?bookID=b001>
 - (replace b001 with any bookID) -- provides details of book with ID of bookID
- curl -X GET <https://eecs4413-bookstore.mybluemix.net/rest/log/orderlist?bookID=b001>
 - (as above) -- provides list of all purchase orders of book with ID bookID